California Environmental Protection Agency
Advisory Committee on Environmental Justice Meeting

Cal/EPA Headquarters Building
Sierra Hearing Room
Sacramento, CA

FEBRUARY 18, 2003
DRAFT MEETING NOTES

(Edited: March 12, 2003)

I. WELCOME/INTRODUCTIONS

Advisory Committee Co-chair, Ms. Diane Takvorian opened the meeting by welcoming Committee members and Interagency Working Group members to the meeting. Also, Ms. Takvorian offered thanks on behalf of the Committee to Cal/EPA. The meeting focused on two critical issues, the precautionary principle and cumulative impacts. Ms. Takvorian stated she felt these two issues would allow for more opportunities to achieve environmental justice. She added that she believed there was a strong relationship between the precautionary principle and cumulative impacts. The lack of precautionary action in environmental justice communities has resulted in common land use controls separating industrial and residential uses are not applied. Also, due to the large number of pollution sources in EJ communities, a chemical by chemical or facility by facility approach will therefore not by effective.

Cal/EPA Agency Secretary, Mr. Winston H. Hickox thanked everyone for participating in the meeting. He shared that the BioDiversity Council the previous week had dedicated a meeting to the subject of environmental justice. Mr. Hickox was surprised how CalTrans had incorporated environmental justice into CalTrans processes. Mr. Hickox added that the work of the Committee is important to the achievement of environmental justice. Mr. Hickox stated that environmental justice is an agency priority.

Ms. Takvorian continued the meeting by having the Committee members and members of the audience to briefly introduce themselves. Ms. Takvorian provided an overview and introduced the presenters for the precautionary principle panel:

II. PANEL PRESENTATIONS - PRECAUTIONARY PRINCIPLE

Panel Presenters:

Dr. Peter Montague, via conference call, is the co-founder and director of the Environmental Research Foundation. He publishes the environmental weekly newsletter - *Rachel's Environment and Health News*.

Dr. F. Jay Murray is an environmental toxicologist, who has served on the Governor's Proposition 65 panel and has worked in the pharmaceutical industry with Syntex Corporation.

Mr. Jim Douglas, Owner, Prestige Cleaners in Sacramento and, has been involved in developing innovative methods in the dry cleaning industry.

Dr. Carolyn Raffensperger is executive director at the Science Environmental Health Network.

PANEL 1: PRESENTATION SUMMARIES

Dr. Peter Montague - Environmental Justice Requires Precautionary Action

(Please refer to Dr. Montague's prepared document attached)

Dr. Montague began his presentation by stating he felt that the precautionary principle was essential for achieving environmental justice. He stated if we (as humans) do not behave in a precautionary manner we would not be able to achieve environmental justice. The two are linked together.

Below are excerpts of Dr. Montague's presentation:

"The precautionary principle requires businesses and government to adopt a precautionary manner.

The precautionary principle is simple. We find three elements in the precautionary principle: (1) a reasonable rational suspicion of harm; if you have that and (2) scientific uncertainty about the cause and effect then the precautionary principle says we (3) all have a duty to prevent harm. For example, if you have reason to believe the house is on fire, you don't wait to see flames breaking through the roof; instead you take action as soon as you have reasonable suspicion of the problem.

This sounds like common sense and indeed it is common sense. Unfortunately, it has not been our standard way of doing business for the last fifty (50) years. Our standard way of doing business for the last 50 years has been to start doing something, and even when there is a suspicion of harm, we work very hard to deny the harm. We hire scientists to tell us that there really is no harm, we go to court, etc. We do not immediately take precautionary action.

When we take precautionary action, there are various steps we can consider taking. First, we can think of all the reasonable alternatives that we face. This is often not the way we do business. For example, we make a decision to solve a solid waste problem – we decide to put in a solid waste incinerator – and then we develop a rationale of why that is a good idea. The precautionary principle says that if you have a solid waste

problem, what way is the least harmful alternative? Pretty straight forward and quite a different way of doing business.

The second consideration when taking precautionary action is to place the burden and place it on the business, or governmental agency. It should not be up to the public to prove the suspicion of harm. If there's a reasonable suspicion of harm, it should be up to the party who is causing the suspicion of harm to explain what they are doing.

Finally, in making decision of all kinds, the people who are going to be affected need to be fully involved. We often fail to recognize that the community persons are experts in community problems. For example, in the 1920s, the people who smoked cigarettes knew that smoking was addictive and could kill. However, it wasn't until 1964 that the US Surgeon General concluded in a formal scientific report that smoking was harmful and addictive. And it wasn't until 30 years later that we started getting cigarette smoking banned in restaurants, hospitals, etc. The precautionary principle if applied to that problem would have acted much more quickly, saved many lives and an endless toll of suffering.

Why do we need precautionary action? There are five reasons (although there is more). First, we and our children are endangered by industrial hazards. We have increases in childhood cancers, diabetes, autism, neurological disease, autoimmune diseases, and birth defects. In hundreds of studies we have parallels that link industrial hazards to these cases. For every one of the diseases that I have mentioned, there is an environmental justice component. There is a population of minority people or economically deprived people that are linked to these diseases.

Second, in many cases scientific certainty may not be possible to achieve, particularly when you are talking about the effects of multiple exposures. Science simply does not have effective techniques for analyzing multiple causes and multiple effects. There is a long latency period between the time of exposure and the time when disease becomes apparent. You have no control population where no person is exposed. That is to say we are all getting exposed. Science cannot come up with undisputable relationships. So as long as we continue to let scientific certainty paralyze the regulatory process, we will continue to have huge public health consequences from exposing people to industrial chemicals and we will have the environmental injustices that go with those exposures. Cumulative impacts are really something that science cannot evaluate as to cause and effect. I think that it's likely that will be decades and perhaps centuries before science is sophisticated enough to deal with multiple causes and multiple impacts in the same study. So in the absence of a science that can tell us cause and effect for cumulative impact, and cumulative impacts that are delayed in time and cumulative impacts that are confused by factors that we cannot identify, the ethical way to behave is not to allow the exposures to continue but to take precautionary action in the face of suspicion of harm.

So the precautionary principle is an ethical principle that tells us to take actions in the face of uncertainty. Rather to allow scientific uncertainty to paralyze us. The destruction of the environment and human health are costing us billions of dollars every

year in addition to the human suffering. The economics are a huge waste of financial resources. So it would make better economic sense to avoid problems by preventing problems. That's why the Bristol-Meyers Squibb Corporation has adopted the precautionary principle as a way of doing business.

Fourth, we all have the fundamental right to a clean environment and we must insist upon that right as stated in the California State Constitution. Also, the Human Rights Commission of the United Nations (2001) has started to establish the right to a clean environment as a basic human right. The assumption is now that pollution is a violation of human rights.

Finally, we are all responsible for consequences of our own actions. We should all try to be safe rather than sorry. That means we should do unto others as we would do onto ourselves.

There are at least twelve kinds of precautionary action that we can take:

1. We can set goals.
   For example, let's say that arsenic probably causes cancer in children and it is found in wooden playground equipment. We could then set a public health goal to reduce children's exposure to arsenic within five years. Then we would work back to the steps we would need to take to achieve that goal.

2. With goals in mind, we can design the steps to get there.
   Starting with a goal, work backward to steps that could be taken now, and next week, next month, next year, to achieve the goal. In developing "next steps," involve the public fully in setting goals, examine all available alternatives, and put the burden of proof of safety on the polluters.

3. We can look for, and act upon, early warnings of trouble.
   Various diseases are early warnings of trouble or for example poor school performance in children. Growing inequalities are early warnings of trouble. We can examine all reasonable alternatives. We can ask how can this effect the most vulnerable among us? Decision-makers often don't ask that question. Other examples: (1) Increases in asthma, diabetes, obesity, attention deficit disorder, or poor school performance, for example, signal that something is amiss. (2) Pay close attention to inequalities. Economic inequalities give rise to disproportionate impacts of deprivation and very negative public health consequences can be expected to follow -- disproportionate increases in heart disease, cancer, diabetes, nervous system disorders, etc. Therefore, tracking inequalities will reveal important public health problems and will indicate preventive actions we could take. [There is a substantial body of scientific and medical literature supporting the point that inequalities give rise to disease; see, for example, Richard G. Wilkinson, Unhealthy Societies; the Afflictions of Inequality (New York: Routledge, 1996; ISBN 0-415-09235-3).] (3) When early warnings come to light, take the time to examine the history that led to the present problem. Ask, How could we have identified and intervened in this problem earlier, to prevent

harm sooner? Ask, are similar situations developing right now? For example, when we find a toxic dump, or a toxic air emission, we could immediately ask if similar toxic discharges are occurring elsewhere now and take steps to curb them.

4. We can examine all reasonable alternatives and select the least-damaging (or explain in detail why the least-damaging was rejected)

5. We can ask, "How will this choice affect the most vulnerable among us?"

6. We can ask, "Will this choice increase or decrease inequalities (of many kinds)?"

7. We can ask, "Will this choice increase or decrease cumulative impacts on the affected communities?"

8. We can ask, "Will this decision violate basic human rights?"

9. In any evaluation of costs and benefits, we can make sure that the protection of health takes precedence over economic considerations. The Commission of the European Communities, expresses the point this way: "Examining costs and benefits entails comparing the overall cost to the Community of action and lack of action, in both the short and long term. This is not simply an economic cost-benefit analysis: its scope is much broader, and includes non-economic considerations, such as the efficacy of possible options and their acceptability to the public. In the conduct of such an examination, account should be taken of the general principle and the case law of the Court that the protection of health takes precedence over economic considerations." [3, pg. 5]

10. We can take direction from the affected people as we search for solutions. We can acknowledge that affected people are the experts in finding solutions for their communities' problems, and governments can devise practical and effective methods for learning from these experts. (Techniques for improving community participation have been described at http://www.rachel.org)

11. We can place the burden of proof on the owner/advocate of whatever it was that initially raised suspicion of harm. He or she has the responsibility to produce thorough information to show that the initial suspicions are not justified, or that mitigating steps can and will be taken to eliminate the suspected harms.

12. We can monitor results and revisit decisions every few years. How are we doing? Have things changed so that we could now do better by making different choices?

Lastly, I would like to leave you with this one thought. The precautionary principle is essential for achieving environmental justice. If we (as humans) do not behave in a precautionary manner we will not be able to achieve environmental justice. The two are linked together."

Dr. F. Jay Murray – The Precautionary Principle: Its Use and Misuse

(Please refer to the Dr. Murray's PowerPoint Presentation notes)

Dr. Murray began his presentation with an assessment of the precautionary principle. He hoped to unlock some of the mystery behind the precautionary principle. Dr. Murray reviewed dozens of articles for and against the precautionary principle including articles from the other members of the panel, in addition to applying his experience. Dr. Murray stated he did not feel the precautionary principle does not represent good public health policy.

The topics of Dr. Murray's discussion involved four issues: (1) how could anybody object to the precautionary principle?; (2) the current regulatory approach, which uses risk assessment, is precautionary; (3) extreme precaution is harmful to public health and the environment; (4) and the precautionary principle is bad science and bad public policy.

Dr. Murray pointed out how could anybody object when the precautionary principle seems reasonable and common sense at first glance? Reasonable precaution is essential. It is important to understand what that term means to those who define and advocate it and to examine the ramifications.

Referencing Dr. John Graham, Administrator for the Office of Information and Regulatory Affairs, Dr. Murray emphasized the quote, "Precaution is a necessary and useful concept, but it is also subjective and susceptible to abuse."

Dr. Murray pointed out key elements of precautionary principle as an extreme form of precaution. It translates into any risk is too much to tolerate, the mere possibility of a risk is too great, and used to eliminate or regulate specific technologies (e.g., cell phones, pesticides, genetically modified crops, chlorine, pharmaceuticals, medical devices). Finally, Dr. Murray stated he believed the precautionary principle rejected current regulatory approaches.

Consequently, Dr. Murray posed the question, 'what's the harm of the precautionary principle?' He answered that the precautionary principle focuses on theoretical, unproven risks; diverts attention from known, significant threats; does not consider risks of not accepting new technologies; turns a blind eye to the harm from lack of technological development; and harms public health when using extreme precaution.

Dr. Murray quoted Professor Frank Cross from the University of Texas, "The fatal flaw of the precautionary principle … is the unsupported presumption that an action aimed at public health protection cannot possibly have negative effects on public health."

Dr. Murray continued with stating he believed the precautionary principle was unreasonable for many reasons. First, the precautionary principle required an unreasonable degree of certainty and proof. Second, the absence of an effect could never be proved scientifically. Third, whimsical claims didn't have to be proved. And

finally, Dr. Murray offered the idea everything in life involves risk.

Further, Dr. Murray suggested that the precautionary principle is a reckless rejection of current regulatory approach and alleges failure and calls for replacement. He stated that it assumes regulators have not exercised adequate precaution, and claims "new principles for conducting human activities are necessary."

However, Dr. Murray stated the current regulatory approach was a science-based precautionary approach. Risk assessment acknowledged what we know and don't know, openly dealt with uncertainty. He stated that conservative assumptions err on side of safety and we should use a careful balancing of risks and benefits. He felt that the concept wasn't perfect but had an excellent track record.

Referring to the pharmaceuticals industry, Dr. Murray pointed out that the FDA balances risks and benefits because approval of an unsafe drug costs lives. However, being too cautious costs lives too. The FDA does not embrace the precautionary principle and many valuable drugs would be lost, and human health would suffer for example, the approval of aspirin, antibiotics, anti-cancer drugs.

The current regulatory approach in California is such that regulators already exercise precaution. California relies heavily on science and risk assessment and most importantly has some of the most stringent environmental and health standards in United States. They have an independent review by RAAC. Dr. Murray suggests we must be careful not to replace what works with something less effective in protecting public health.

Americans today are living longer and healthier lives than ever. The life expectancy went from 47 years in 1900 to 77 years in 2000. Some examples of beneficial technology are water chlorination, antibiotics, and vaccines. These advances were not without risk and uncertainty.

The precautionary principle is the antithesis of what makes California great – innovation and new technology. The precautionary principle's intent is to slow the introduction of new technology. The precautionary principle devotes too much attention on the risks of new technologies, while ignoring benefits. Thus, the precautionary principle is a terrible idea, particularly for California.

There is a danger of avoiding all risk. The precautionary principle applies the brakes, even when the risks are unknown.

The default position is to stand still, to accept things as they currently are. It sacrifices the potential benefits of future discovery. Quoting Dr. Henry Miller from Stanford University, "The precautionary principle inflates the cost of research, inhibits new product development, wastes resources, restricts consumer choice, creates serious new risks and costs lives."

In conclusion, reasonable precaution is essential in balancing risks and benefits. The current science-based precautionary approach has proved our best option. The precautionary principle is an unproven and risky choice that will harm public health. Exercise precaution in considering the precautionary principle.

Jim Douglas – The Precautionary Principle: Silicone in Dry Cleaning

(Please refer to the Mr. Douglas' PowerPoint Presentation notes)

Mr. Douglas started his presentation by stating that the precautionary principle is a global issue. Mr. Douglas's background is in the dry cleaning industry, Swanson's Cleaners. The plant supported 115 stores.

The solvent used at the plant was a Stoddard solvent, a VOC (volatile organic compound), with a low flash point of 102 Fahrenheit. Our consumption was 120,000 gallons per year (that is the largest plant of the industry). Ninety-five percent of the dry cleaners use perchloroethylene not Stoddard solvent. Our consumption in 1984 was reduced to 32,000 gallons per year with the implementation of recovery dryers. Underground, we had storage of over 65,000 gallons. This is a hydrocarbon, a petroleum product. We were faced of the anticipation of eliminating underground storage.

We began testing alternative solvents including Dow's LS and Dupont's Valene, however, they were eliminated as possible alternatives. All of our efforts were to determine a solvent other than Perc. We also tested other systems. We decentralized this plant in 1998.

Swanson's choose to move its operation to four plants in Sacramento. Prestige Cleaners was then established as a separate company. The company evaluated other alternative cleaning systems such as liquid carbon dioxide, ozone, and water wet cleaning.

Prestige Cleaners became the alpha beta testing of silicone dry cleaning. We installed two machines at the cleaners, the dry-to-dry system and the recovery dry. We were the first plant in the world to use silicone as a dry cleaning solvent. We operated at an R & D (research and demonstration) capacity. The Sacramento Air Quality Management District (SAQMD) advised and assisted in the project.

The results of silicone cleaning led to more efficient cleaning (classifications), savings on utilities (less loads), reduction on labor (easier finishing-the garments came out much more softer), and reduction on waste removal (classification-the move to hazardous waste to industrial waste). Also, employee moral greatly improved, there was no longer an odor on garments or in the working area, we used an environmental marketing message, access to retail stores not previously available to dry cleaners because of possible ground contamination and liabilities, we were able to establish an exit strategy. Hence we began Green Earth Cleaning.

Green Earth Cleaning is a joint adventure along with two very strong partners, General Electric and Proctor and Gamble. What is green earth cleaning? What is silicone? It is not a DOC, it's flash point is 170 Fahrenheit, it's a class 3-A solvent, it's a colorless odorless liquid. This is the challenge to separate silicone from water. Silicone and water don't like each other.

IFI is the International Fabric-Care Institute. It is the representative of dry cleaning international.

When we brought this solvent to market, everyone wanted this solvent because it was environmentally friendly. However we only tested this solvent in only 29 sites cleaning over 2 million pounds of garments over 14 months. We tested this in a variety of geological environments, waste streams, Air samples, still bottom samples, and cartridge filter samples. We were very concerned that the exposure level was not over three. We also tested still waters and waste streams. We found it to be non-hazardous.

We established five criteria for an alternative cleaning process: (1) Will not create or add to future contamination; (2) Has no known or expected health issues; (3) Has financially realistic capital costs; (4) has realistic/affordable labor and operating costs; (5) Will continue to clean garments and textiles currently being dry-cleaned by the industry.

Carolyn Raffensperger – The Precautionary Principle and Environmental Justice
(Please refer to the Ms. Raffensperger's PowerPoint Presentation notes)

The precautionary principle according to a man who works for the National Institute of Health (NIH) said this is a first rule that couples ethics and epidemiology. She communicated that the values underlying the precautionary principle are prevention of harm, obligations to future generations, an appreciation of and respect for the limits of science, obligation to make the ethical framework underlying decisions explicit, respect and rationality, and taking responsibility for our actions.

The precautionary principle is overarching. Precautionary principle and risk assessment begin at very different places. Risk assessment/management attempt to quantify and manage risk. The precautionary principle begins upstream; asks more fundamental questions; counsels prevention.

What are some of the lessons learned?

1. Prevention is wiser and less costly than repairing damage.
2. We should consider worst-case scenarios carefully. Low probability, high-risk events not only follow Murphy's Law, they follow statistical probability.
3. We should put certainty on a sliding scale rather than treating it as an absolute. If the potential harm is serious we need to take action even if we are less certain about the probability or magnitude of the harm.
4. We should foster the conditions that encourage foresee ability (openness, free-flowing information, protecting minority-view science, soliciting community observations). We failed to predict some problems like CFCs damaging the ozone layer, but that doesn't mean they were unforeseeable.

5. Timing is everything. The higher the stakes, the more important it is to take precautionary action sooner rather than later. Speed up democracy. Slow down large-scale deployment.
6. Concentrating precious things (people) or harmful things (radioactive waste or hog manure in lagoons) increases the chances for major damage in the event of an unexpected problem. Scale determines whether a problem will be a minor disturbance or a catastrophe. Large-scale activities will cause trouble some time, some place.
7. Favor actions that keep options open. Favor actions that allow for experimentation. Favor actions that can be monitored and reversed if there are unintended consequences.
8. When the science is uncertain, switch sciences: map relationships rather than measure things or move from toxicology to evolutionary biology, pharmacology and physiology. Rigid dependence on one discipline or scientific tool blinds us to the clues in other disciplines.
9. Expand and protect information and wisdom. Adopt policies of openness rather than secrecy. Secrecy is the tool of tyrants.
10. Connect the dots. Search for pattern. Emerging patterns provide new hypotheses and opportunities to avoid harm.

There are some suggestions to implement the precautionary principle. Some suggestions are:

- Establish a general duty to act with precaution.
- We can set environmental justice goals.
- We can establish a public interest research agenda, including cross-disciplinary approaches. Is Cal/EPA asking their research agencies what they want to know?
- We need to enhance information flows. Right to know is a great process. It has helped get a handle on some of these problems.
- Use the appropriate disciplines. Use multiple disciplines.
- Shift the burden of responsibility/proof.
- Create new torts. Specifically require pre-market testing.
- Choose the least harmful alternative.
- Engage in democratic decision-making processes.
- Take actions that are:
    - Anticipatory and preventive
    - Increase rather than decrease options
    - Can be monitored and reversed
    - Increase resilience, health, integrity of whole system
    - Enhance diversity (one size does not fit all)

There are many reasons why we can say yes to the precautionary principle. Some examples includes, pre-market testing, monitoring, performance bonds, alternatives assessment (Similar to an EIS under NEPA). Searching for alternatives drive technology innovation, use biological principles when data is missing (green chemistry, evolutionary biology), adaptive management/Bayesian approach.

Risk assessors looked at what they would do differently. They have lots of information. They started looking at a way they could examine the emerging patterns based on federal alert practitioner statutes (for example, physicians are supposed to report adverse drug reactions). Verizon sent out pamphlets that identified the precautionary principle which basically stated that they don't know about much about the science of microwaves in the use of cell phones and the public might want to limit the use of cell phones with children. They didn't say don't use the cell phones, they just suggested limiting the time of usage.

The precautionary principle is often used to drive a research agenda. The Bristol Meyers Squibb has adopted a precautionary principle to look at drugs in the water problem. Also, the California study on EMFs uses the precautionary principle.

In regards to purchasing, the seller has the burden to disclose information and thus allowing the public to search for the best alternatives.

Overall, we observe many businesses are adopting the precautionary principle to reduce liability down the road. Also scientific disciplines have addressed the precautionary principle.

She concluded with the quotation, "In a flying machine with more than 2.5 million parts, even a 99.9 percent reliability level would still leave 2,500 things to go wrong." (Time magazine writer)

III. QUESTION & ANSWERS (for Panel 1) from COMMITTEE MEMBERS

Co-chair, Ms. Takvorian thanked the members of the precautionary principle panel for their presentations and time. Ms. Takvorian opens the floor for questions from the Committee members and Interagency Working Group members.

Committee member Ms. LeVonne Stone stated that billions of dollars have been spent on research however, none of the results have reached the community. Ms. Stone suggested that that money needs to be redirected back to the communities. Children don't have good health care. Ms. Stone stated that the Committee is trying to keep a balance and address these issues. She added that she believed the precautionary principle is the only concept to address environmental injustices. Ms. Stone asked Dr. Murray what he thinks communities can do to get some protection and prolong their life?

> **Dr. Murray** responded to Ms. Stone's question by stating that we have the opportunity to accomplish so much more through education. He has been involved with education program through the pharmaceutical industry involved cholesterol and blood pressure. He stated he wasn't sure what would be the best way to educate the community but the precautionary principle wasn't best way. He added that prevention is the key. There is a difference between extreme precaution and reasonable caution. Dr. Murray didn't believe the

precautionary principle would improve public health for any group. For example the food aid to Africa (Zambia and Zimbabwe) was returned in the name of the precautionary principle because they feared the genetically modified food. He thought that was a great example of the misuse of the precautionary principle.

Dr. Raffensperger added that she thought that was a great misuse of risk assessment. Zambia sent scientists here to the United States to examine the risk assessments that had been done by the United States on genetically modified corn. The risk assessments had been done on a US diet that presumed that all the corn would be processed, that the corn kernel would be part of the diet. When the African scientists looked at the risk assessments, they determined that the reports did not look at the possibility of the corn would be 75%-95% of the diet.

Committee member Mr. Carlos Porras asked the question of how does the specific methodology of risk assessment address those data gaps (for example, children's health protection)?

Dr. Montague responded to Mr. Porras' question by referencing Mr. Murray's statement that the present way of assessing risk is conservatism errs on the side of protecting public health using the example of carcinogens. He (Dr. Murray) stated how we many assumptions in our risk assessments. But we then take that information and let billions tons of cancer causing chemicals to be released into our environment year after year. The Center for Disease Control recently released a report showing that every citizen of the United States now has dozens of cancer causing chemicals in their bodies. In fact, babies are born with cancer causing chemicals from industry in their bodies. So the entire system built on risk assessment is not a precautionary system. It is not protecting public health. Data gaps in the present system are enormous. Risk assessment do nothing to study the immune system, or the nervous system, or the effects on female or male reproduction, they don't study the mixture of chemicals which we are all exposed to daily, they do not take into account that some chemicals will effect the growth of the baby are certain stages of growth. All risk assessments assume that a higher dose is worst than a lower dose, but in the case of chemicals that interfere with hormones, in fact, many times a lower dose is more effective than a higher dose. So the situation scientifically is more complicated than our risk assessments take into consideration. We pretend that we can make up for these enormous scientific gaps by applying safety factors. We apply a safety factor of ten to make up for the difference in laboratory animals and humans, and we apply another safety factor of ten to make up for difference between a sensitive individual and an individual who is not sensitive. Well, these numbers are pulled out of someone's ear that has no basis in science whatsoever. Its guesswork and nothing more than guess work. The risk assessment process is not a precautionary process and that is why we have the public health consequences that I've discussed before, childhood cancers, autism, neurological diseases, immune disorders, nervous system disorders and birth defects, etc.

Mr. Porras stated that the other term he heard in the presentation is cost benefit-analysis. Mr. Porras asked the panel to explain cost-benefit analysis because his layperson understanding of what he thought it means which is a cost or value on human life.

> **Dr. Murray** responded to Mr. Porras' question by stating that cost-benefit analysis is not generally what regulatory agencies in the environmental arena do, however, going back to his experience in the pharmaceutical industry, Dr. Murray stated that people will look at the benefits between pharmaceutical therapy versus surgical intervention. We would like to believe that you cannot put a price on human life, but in reality, in the world of medicine, those decisions do get made, whether we like it or not. So there is the concept that there are benefits and prices to be paid attached to various technologies and therapies. It is not uncommon to look whether it is a right decision or public health.

Mr. Porras asked a clarifying question of whether it's not used in a regulatory framework? Cost benefit analysis?

> **Dr. Murray** responded that he doesn't work in a regulatory agency and the risk assessments he sees generally do not have a cost associated with them. He believed the cost come in later when risk management comes into play and is separate from risk assessment.

Committee member Dr. Henry Clark stated he didn't agree with some of the presenters' statements. The history of science hasn't always been accurate. For example, science suggested at one time that the earth was the center of the universe. When you see the relationships of science and politics, between the histories of scientific stories in Africa, Germany and the United States you see that science can and has been inaccurate and distorted. The examples that were used about chlorine in Peru didn't seem to be a condemnation of the precautionary principle. Do you see where the precautionary principle and science can both be used?

> **Dr. Murray** stated he agreed with Dr. Clark's comments the precaution and science could both be used. He stated that you could use a precautionary approach using science. A lot of proponents of the precautionary principle framed the issue as, 'reject toxicology, reject risk assessment and replace it with the precautionary approach.' Dr. Murray added that he thought many scientists have a very negative response to that because their view is that what they are doing is using science and applying a precautionary approach. Dr. Murray stated he didn't want Dr. Clark to reject science, and he appreciated the fact that science didn't have all the answers, and that there's a lot that we still don't know.

Committee member alternate for Dr. Henry Clark, Ms. LaDonna Williams stated part of the problem is keeping the public out of the process. It has been her experience that the precautionary principle works. Ms. Williams suggested that Dr. Murray take the opportunity to communities are using this concept and it's working. Communities of

color have been ignored and bare the greatest burden of harm and the more affluent and white communities have been and are protected.

> **Dr. Murray** stated that that one could require or take precaution to such an extreme that things stagnate and you lose things that derive from these changes. He stated he appreciated what Mr. Douglas did with his business. However he asked, 'what is a reasonable suspicion of harm?' Dr. Murray stated that you have to be careful in introducing a new technology in the extreme. A large part of changes have been influenced by regulatory facilities.

Committee member Mr. Barry Wallerstein stated he felt that the precautionary principle is an on and off switch, which he didn't feel was the case. There are degrees of the precautionary principle. The state standards have more stringent standards to protect people. He suggested shifting the burden of proof.

> **Dr. Raffensperger** stated that pre-market testing gets at that. We all could learn lessons from insurance companies.

Committee member Mr. Wallerstein raised a question of how could the air quality management district who represent a variety and numerous people do better to implement environmental justice?

Committee member alternate, Ms. Marta Arguello stated that lots of people have had to become environmental activists. Having the principle in place would mean you couldn't put more facilities in Vernon.

> **Mr. Douglas** stated that if his company found silicone to have adverse effects, they would definitely pull it.

Committee member, Ms. Cindy Tuck stated she read a lot previous to the meeting and it seemed to her that there are many different definitions of the precautionary principle.

IV. PANEL 2: CUMULATIVE IMPACT

Panelists:

Dr. Rachel Morello-Frosch, Professor, Brown University (joined via conference call)
Mr. Robert Lucas, Principal, Lucas Associates
Dr. Winona Victery, Scientist, USEPA Region 9

Dr. Rachel Morello-Frosch – Why Addressing Cumulative Impact is Important for Environmental Justice

(Please see Dr. Frosch's PowerPoint Presentation Notes)

Cumulative impact is an environmental justice concern because preliminary research indicates that communities of color face a disparate impact of the location of

environmental hazards. There is also little research has examined cumulative health impacts of environmental exposures comparatively across demographic groups. CDC's National Exposure Report indicates that children of color (Latinos and African Americans in particular) bear a disproportionate burden of exposures to certain harmful substances such as lead and pesticides. Data suggests a need for a more holistic regulatory approach to assessing exposure realities of diverse communities.

There is a challenge to linking toxics to adverse health outcomes. For example, previous approaches to examining environmental inequities related to air pollution (examples include: the location of large industrial/waste disposal facilities; emissions loadings - Right-to-Know laws & Toxic Release Inventory make this possible and No information on potential health effects of mobile sources (e.g. cars); distribution of ambient concentrations limited to a handful of pollutants; little research on the cumulative exposures faced by communities where they live, work and play; little known about potential impacts on community environmental health).

Examined Children's health as a priority in the regulatory and policy arenas due to President Clinton Exec. Order 13045 on Children's Health. Data indicated increased susceptibility of children to toxic exposures due to Differences in metabolism, exposure and absorption patterns. Studies indicate that children of color bear disparate burden of exposure to environmental hazards and their potentially adverse effects. The paucity of information on cumulative health impacts of ambient air pollution among children while at school - Issue often not examined through an environmental justice lens. There were controversies over school siting in Los Angeles which led to educational opportunities and environmental justice concerns for students of color however, LAUSD slated to build 80 schools over the next 5 years.

Methods used in the study were the examination of the distribution of ambient air toxics and associated health risks among demographic groups in LA Unified School District, assessments of the relationship between school performance and estimated respiratory risks, the use of GIS school locations matched with host census tracts containing demographic and economic information, and tract-level modeled ambient concentration data combined with relevant toxicity information from to estimate health risks.

The preliminary results for disparate impact of estimated health risks associated with ambient air toxics across demographic groups were the following:

- Estimated cancer and non-cancer risks highest for communities of color, particularly Latino and African American students
- 80% of risk estimates from both studies are attributable to five pollutants (POM, benzene, chromium, butadiene, formaldehyde)
- Respiratory risks are associated with lower school-based API scores even after controlling for poverty, teacher quality, and other key factors
- Challenges for balancing educational needs with environmental health concerns of students of color

The considerations for assessing disparate cumulative impact are the following:

- Move beyond chemical-by-chemical and facility-by-facility analysis to address the exposure realities of diverse communities in California
- Cumulative Impact Assessment needs to incorporate various data sources and tools including:
    - Emissions data
    - Monitoring & modeled concentration data (e.g. CARB studies)
    - Risk Assessment (cancer & non-cancer)
- Don't put all the regulatory marbles into the risk assessment basket.
    - Risk assessment tools are useful, but remain imprecise and the lack of comprehensive toxicity data for non-cancer impacts remains a problem
- Update emissions inventories and harmonize TRI estimates with state inventory estimates
- Results of local monitoring studies, such as Barrio Logan study, can be used to incorporate previously excluded emissions sources into emissions inventory.
    - Better emissions inventories will improve concentration estimates, exposure assessments and health risk assessments
- CARB EJ policies move in right direction
    - Challenge is developing tools for decision-making
- Air toxics modeling information needs a comparative analysis to examine potential disparities in risk burdens across demographic groups.
    - Demographic disparities should be analyzed at the neighborhood and regional levels
- Criteria pollutants:
    - Develop aggregate index of long-term exposures to examine locational differences in community exposures.
- Cross-media approaches could examine water, hazardous waste sites, risk of lead contamination and other indicators of cumulative impact
- Cal-EPA can play a leadership role in coordinating strategies to analyze cumulative impact across media.

Robert Lucas – Cumulative Impacts

Mr. Robert Lucas stated he shared the perspective of many in the business sector. As an overview, Cal/EPA and it's BDOs have the most stringent environmental requirements in the nation.

We believe it would be appropriate for Cal/EPA and it's BDOs to review their programs, activities to address where they should address cumulative exposures and risks that do not currently do so.

We believe that there are many programs that already do address cumulative exposures for example; the California Clean Air Act Program, which the CA Air Resources Board and air districts implement, addresses the concentration of criteria pollutants in the air. Ozone is an example of a criteria pollutant. The program addresses attainment standards that are based on what levels of exposure causes adverse health effects. There are programs that manage exposure and risks at individual facilities that already work from a cumulative perspective. For example, risk

management plant program work from a cumulative perspective. Those facilities in that program have extensive risk management plans with a certain assumption built in. These facilities also have a business plan and an area plan. And that's what happens in the event that something actually does happen that could be contained within the facility. Site clean-ups are another example. There are other examples such as ARB's Air Toxics Program which looks at current risks posed by individual facilities, and here the stakeholders agree that ARB should develop tools to be able to assess cumulative risk.

CalEPA should avoid building new programs or expanding programs just for the sake of regulating. The key is to identify where there are true program gaps, where cumulative exposures and cumulative risks are not being addressed. And where there are program gaps, each BDO need to develop tools to assess cumulative exposure, cumulative risks, and also determine criteria-at what level cumulative exposures and cumulative risks harms public health, i.e., what is the appropriate threshold? Tools will allow BDOs to evaluate cumulative exposure or cumulative risks problems. These tools should also allow for BDOs to determine what types of sources contributed to these types of problems.

He raised this issue because it's easy to go back to industry as the source of the issue, however Cal/EPA should address other factors, for example air toxics have resulted from mobile sources, in coastal pollution urban run-offs is a major factor.

For situation where there are problems, BDOs need to determine what is the most equitable and cost-effective way to solve the problem. Some of the challenges Cal/EPA faces is first this problem is not as easy as it may seem. You can't flip the switch and have a cumulative exposures or cumulative risks program in place. It takes time to develop and there are certain challenges that need to be overcome. First we have to go back a look at the scope of the cumulative exposure or risk in question. Second, tools. Developing technical tools to assess cumulative exposure or cumulative risks is not something that can be done overnight. Tools will need to be developed in a well thought out manner. For programs to be critical and effective the tools need to be technically valid and used in a technically valid manner. By that we mean that the tools need to be peer reviewed by independent scientists before they are used so that they are based on sound science and also the assessment scenarios need to be realistic so that results are credible. If the tools demonstrate that there are problems, how do you address cumulative risks or exposures without hurting economy and jobs? Some may want to push a cumulative exposure or cumulative risks program to push a no growth agenda, or to shut down businesses. Developing tools with sound science will help ensure that these tools are not used for that end. It goes without saying that businesses provide jobs and health care while maintaining public health. Also, we should try to avoid unintended consequences for example, stopping clean-ups.

Cal/EPA needs to consult with policy makers and stakeholders and discuss how addressing cumulative exposures and risks effects other policies aimed at smart growth and redevelopment of cities. There should be strong public process.

BDOs need to look at all major contributors. Solutions should be developed on a programmatic basis in relation to programs as opposed to one project at a time or one permit at a time. The programmatic approach will address the problem without unfairly targeting one type of facility. The programmatic approach will provide certainty to the different sources that have to comply before they know beforehand what requirements will apply to them. It will allow new businesses to come online while allowing existing businesses to come under standards.

If the programs are to be effective they should also be prioritized. Someone raised the question of should there be a capping of new facilities in land use planning – we caution against this type of approach. Restricting land-use on the number of facilities is arbitrary. Decisions made on the environment should be based on the thresholds of exposures and risks and based upon sound science. The exposures and risks depend on the area in question.

With regard to Cal/EPA programs, the Cal/EPA programs already address cumulative risks in many different facets. The ARB has adopted its environmental justice policy in December. On the water quality side, discharge standards are often more stringent than drinking water because these standards are based on the protection of flagged species which are more sensitive than people. The Water Board is implementing the Total Maximum Daily Load Program. This program takes into account the cumulative contribution of pollutants to the watershed. The DTSC permitting program and CUPAs-brownfields and site mitigation programs. More can be done to make better decision-making protocols.

The use of tools requires good data. Most of these programs require substantial data. These agencies are working hard to monitoring and data availability. Tools are being improved and new tools are being developed. Care must be taken in developing realistic scenarios for evaluation. In the absence of detailed exposure data, conservative default values are used to arrive at the appropriate standards. It is not unusual that conservative assumptions are used when there is a lack of data-these are known as safety factors.

Dr. Winona Victery – Framework for Cumulative Risk Assessment

(Please see Dr. Victery's PowerPoint Presentation Notes)

The presentation Dr. Victery gave was based on the premise that the US EPA is interested in cumulative risk assessment. During the period before the presentation, US EPA was working to develop a framework document on cumulative risk assessment. The framework document will be publish in the next couple weeks and will be available on the web. It has taken several years to bring forward and has undergone several scientific reviews and also the Science Advisory Board, after final editing, it will be ready to be published.

Leading up to this point, there were certain issues that came up as the US EPA began to develop guidance on cumulative risk assessment. What is the framework document? What are the features, state of the science and future plans of this document?

The framework document is a general description of the topic. It is an information document laying out scope of the subject and how various parts fit together. It is not, however, a guideline for cumulative risk assessment, or description of how it's done, including boundaries (e.g., limits of "good science") not to be exceeded. We expect the guidelines will be several years down the road in the development stages.

Before going any further, Dr. Victery clarified the use of the words impacts versus risks. Impacts means harm or adverse effects (a measurable outcome), while risks defines the probability of harms or adverse impacts.

What is cumulative risk? There is a difference between standard or "traditional" risk assessment and cumulative risk assessment. Standard risk assessment describes where we've been, and cumulative risk assessment asks why change? **Cumulative risk** is the combined risks from aggregate [multi-pathway, multi-source, multi-route, over time] exposures to multiple agents or stressors. **Cumulative risk assessment** is an analysis, characterization, and possible quantification of the combined risks to health or the environment from multiple agents or stressors. So it's important that you have multiple stressors, combined risks and it doesn't necessarily need to be quantitative.

The goal of cumulative risk assessment is, using the commonly accepted definition of risk as "probability of harm", to address and hopefully answer questions related to the probability of harm, to human health or the environment, from multiple stressors acting together.

When do we use cumulative risk assessments? Cumulative risk assessment is a tool, not appropriate for every task. Cumulative risk assessments will be most useful in situations where questions need to be addressed concerning the impacts of multiple stressors acting together. Currently, there are methods limitations.

There were a number of issues to be tackled within the document, such as process issues to the extent of public participation, organization of the framework, etc. In addition to technical or scientific issues in terms of feasibility of certain components, etc., and finally policy issues (i.e., requirements, etc.). Some policy issues were interpreting the definition, value added (where/when done?), is it an Agency priority, dealing with stakeholder fairness, defining "acceptable risk", types of stressors/risks included, and legal issues.

The features of cumulative impacts are the following: multiple chemical/stressor, non-chemical stressors, population focus, stakeholder emphasis, vulnerability, human health and ecology (may have to assess parts together).

The state of the science of cumulative risk assessment involves what do we know about…however the following questions arise:

- Adding risks across stressors?
- Synergism & other interactions?
- Vulnerability?

- Non-chemical stressors?
- Methods to do these assessments?
- How all these factors change risk?

We examined combining different risks and posed the questions can (or even *should*) different types of risk be combined? Is there a common metric approach (must have "common denominator")? Common denominators are the combination toxicology/combining risk, the risk factor approach, biomarkers or biomonitoring, and quality adjusted life years (QALYs), or disability adjusted life years (DALYs), loss of life expectancy (LLEs) and other quasi-economic measures. Further we examined the index approach because we wanted to keep different risks separate and profile.

Also, the subject of uncertainty is very important to this issue. Few good examples of uncertainty analysis for Cumulative Risk Assessments - new GIS-based technology poses new challenges in uncertainty analysis; what type of analysis would be useful to a decision-maker?

The future plans of this cumulative risk assessment process is to publish the document early 2003, case studies will be developed 2002-2003, issue papers on specific topics 2003, work with National Environmental Justice Advisory Committee on Spring 2004 meeting, and develop guidelines starting 2003-4.

V. QUESTIONS & ANSWERS (FOR PANEL 2) from COMMITTEE MEMBERS

Committee Co-chair, Ms. Takvorian thanked the cumulative impacts panel presenters for their presentations and time, and opened the meeting up for Committee member questions to the panelists.

Committee member Mr. Robert Harris posed a questioned to Mr. Lucas as to what he meant by his usage of "sound science", whether he had a definition for the term, and how 'sound science' could be distinguished from other science.

> **Mr. Lucas** responded that he wasn't sure whether he could offer a scientific accepted definition but one that is generally used by the business community is, "repeatability of results, accuracy of prediction, objectivity of inquiry and scientific values, and using a process that will hopefully give results that will achieve those basic objectives." Dr. Victery added that the statement Mr. Lucas offered seemed to be a contradiction of what science and sound science is.

Ms. Sandra Salazar-Thompson, EJ Director for the Governor's Office of Planning and Research, posed the question to Dr. Frosch. Ms. Thompson asked Ms. Frosch to clarify what she meant in presentation when she stated that an agency should 'not put all their regulatory models into one risk assessment basket' and how would she direct a government agencies' effort if not to the risk assessment process?

Ms. Frosch responded that often times risk assessment is held up as the "gold standard" when there's other data that can be used to assess disparate exposures or inequalities in emissions, particularly when data is not available to do a risk assessment or when it's pretty clear cut that what's being emitted is bad for public health. Ms. Frosch stated she does use risk assessment but it's important to use that as one tool and combine it with other data sources and thus use them together to look at indicators of possible disparate impacts in terms of exposures to potential hazards.

Mr. Lucas stated he would be interested in looking at the methodology of what it entails. The premise of the business community's position is precisely what was laid out in Dr. Frosch's first slide, emission, and exposure. Risk assessment is a tool that we can use in everyday decision-making.

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Ms. Salazar-Thompson then posed a question to Mr. Lucas as to what he would suggest could be used in the absence of risk assessment.

Mr. Lucas stated that what is currently being done is using conservative assumptions as criteria. Dr. Victery added that in her experience she didn't believe that risk assessment didn't provide the measure of exposure that is critical for deterring health impacts. We know that air pollution is out there, but we don't know what exactly what the body burdens are. Ms. Frosch offered that she would added to Dr. Victery's statement that biomonitoring indicate the presence of pollutions in the body and however; we are not seeing them in the emissions inventory. Therefore, the example of flame-retardants in breast milk is a good example. It's very hard to get a handle on where that stuff is coming so body burdens are important but we don't know where those toxics are coming from.

Committee member Ms. LeVonne Stone posed a question to a presenter in the first panel (Mr. Jim Douglas). She asked Mr. Douglas whether benzene is being used in the dry cleaning business – she was concerned because there are signs posted around stated some of the agents being used to clean garments cause cancer. The chemicals that had leaked in her community contaminated the ground water in her community. Ms. Stone wanted to know how the scientific community was going to deal with this so her community can get the correct information to deal with the issue of contamination.

Mr. Douglas replied that benzene is not being used. He believed the chemical Ms. Stone was referring to was perchloroethylene. He believed that the dry cleaning industry has changed to look at chemicals in a different way. He believed that the industry now does a better job and does a lot of testing.

Ms. Stone stated that she was trying to get to the point where her community can get to better health care and assistance.

Committee member, Dr. Clark, referring to Mr. Lucas's presentation, indicated that he did not share Mr. Lucas's assertion that there already exists adequate cumulative impact studies and that we should not go too far as to impede economic growth. Dr. Clark stated he worked in an industrial area and he didn't know of any cumulative impact study that could be done without going into the community or without talking to members of the community. He didn't believe that a cumulative impact study could be done if the present health conditions of the people in the community were not known, if one didn't go into the community, and you didn't know who lived in the community. He stated he believed it's good that a cumulative impact model was being developed. However, in order to have a complete study you need to know all that one is exposed to but that does not happen. He stated that the precautionary principle should be used.

> **Dr. Frosch** stated we should define the precautionary principle broadly and there were certainly things that could be done now. Data is getting much better on air and that could be incorporated with comparative data. She offered that thing could be divided into what could be done today and what could be developed.
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> **Mr. Lucas** stated he believed that there are gaps. The underlying themes that the BDOs were using should work although there is room for enhancement. Sometimes exposures don't relate to emissions.

Committee member Mr. Porras asked the question to Dr. Frosch, 'how do we better protect the children?'

> **Dr. Frosch** replied that the ecological study that they did looking at air toxic and children's academic performance. There was a lot of dispute in the Los Angeles school district on siting. Concern was expressed at various levels. If there were too much concern about EJ – that could affect the ability to build schools. Dr. Frosch believed what the study illustrates is that environmental concerns are an issue and they impact children's ability to learn. Also, environmental justices need to be taken into account if we are going to exercise caution. She suggested that there is a need to take into account environmental issues when making such decisions and asked questions.

Committee member Mr. Porras indicated that the current stated some say that the current methodology used to conduct risk assessments are enough to protect public health. Mr. Porras referred to a comment made earlier in the meeting that we are much more stricter in how we look at chemicals. There are 30,000 chemicals in the market, and the agency that is being assigned to look at these chemicals has "a little information" on about 800 of those. Mr. Porras mentioned that the struggle with our experience in Bell Gardens, CA when the community was confronted with a high level of hexavalent chromium, and according the facility permit, it was operating under the safety limits. Bythe end of that community struggle, there were 25 children who had lost their lives in a ten-year period. How do we take the tools we used in risk assessment and use precautionary principle that are going to protect the environment, but that's not so dependant upon economic gain, and available to the community.
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Dr. Winona Victery responded by stating that in the situations where we have information, is information made available.

Committee member Mr. Porras continued by stating that the situation at Bell Garden's Suva School has been well documented by agencies such as DTSC (who was the lead agency) and received information from the Air Resources Board and the South Coast Air Quality Management District. The tragedy of Suva School is well documented. **Committee Member Mr. Barry Wallerstein** indicated that when we look at protecting public health, we should encourage the earliest possible disclosure on environmental information to communities – particularly risk assessments. He also mentioned that there is the need to develop models to facilitate those early discussions with communities. He mentioned that within CEQA, we have the opportunity to facilitate those early discussions with the communities, and he would like to see a uniformed approach as to how we have those early discussions.

Secretary Winston Hickox mentioned that the current dialogue in the meeting flows a many levels. He mentioned that in the Governor's "State-of-the-State" address, he discussed the importance of small business, and that he was appointed to the Small Business Task Force. Secretary Hickox acknowledged that public agencies are challenged with effective communication, and stated that in order for the public agencies to respond to real community concerns, the priorities have to be identified early in the process with public input. He reaffirmed Cal/EPA's commitment cross-media approach to environmental protection, and provided the examples of Cal/EPA's Strategic Plan and the process by which the BDOs engaged in to develop their specific Strategic Plans. Another example was the fire in Fresno where there were multiple agencies responding to the issue, and mentioned that it was crucial for agencies to work with each other. The Secretary posed the observation that in the previous panel presentations on cumulative impact, it appeared that the industry sector was supportive of such a cross-media effort in cumulative impact assessments.

Mr. Robert Lucas indicated that a cross-media effort does lead the way, and with regard to a cross-media approach does lead the way to environmental protection. With respect to cross-media cumulative impact assessments, he aggresses with the Secretary, and mentioned that the BDOs have already done considerable studies and we don't want to deny that impacts are linked with exposures.

Secretary Hickox stated**,** "If there's a need for additional monitoring can I count on you and the constituencies you represent to help with the resources with that monitoring?"

Mr. Lucas: "we would be more than happy to engage in a dialog"

Secretary Hickox: "A particular emphasis on monitoring, adequate monitioring"

Mr. Lucas: Right….

Committee member Ms. LeVonne Stone indicated that she continues to hear the phrase "economic development and economic recovery" The community keeps hearing "do you want jobs" or do you want to look at environmental health? In Ms. Stone's community, there are no jobs and little environmental protection for communities. The community has the burden of proving how much exposure. Communities don't make up that kind of information.

> **Dr. Morello-Frosch** mentioned that Ms. Stone might be referring to her presentation's last slide where communities are forced to make the hard choices between jobs and the environment.

Committee member Dr. Henry Clark mentioned in his community, there are a tremendous amount of facilities that emit chemicals, and some of the facilities in the community communicate to the community have an attitude of "don't worry, be happy". He mentioned that the majority of the workers in those facilities don't live in the community.

Advisory Committee Co-Chair Ms. Diane Takvorian thanked the panelists and committee members and indicated that the information received was extremely valuable. She moved the discussion to the Public Comment period and encouraged those in attendance to come to the table to make public comment.

VI. SUMMARY OF PUBLIC COMMENTS

Joan Rhinehart Reiss, The Breast Cancer Fund: Mentioned that the precautionary principle is not a new concept, and that we have to explore a host of possibilities to provide the strongest environmental protection for people. She indicated that we have the tool of CEQA and while many may not like it, CEQA suggests exploring new alternatives including taking no action at all. She mentioned that full disclosure gives us all the necessary information to make reasonable decisions. She mentioned that science takes into account decisions based on "beyond a reasonable doubt". She maintained that public policy is not that way, and the state of the evidence in public policy around breast cancer, for example, indicated that there is enough evidence to take action. She provided an example of a coalition of organizations (composed of 10 groups) working with the City of San Francisco, and working with the Commission for the Environment, and the city decided to revise the entire environmental code and put it under the precautionary principle and environmentally preferably purchasing (what is the life cycle of a product not just the immediate costs.) There's only so much science.

Marci Coglianese, City of Rio Vista mayor, attorney: Stated that there is a situation in her community related to treated sewage sludge which is regulated by 503 fed regulations, according to a report that came out by Cal/EPA in July of last year. This was an example that challenged many of the these ideas. Ms. Coglianese was concerned about the oceans. She stated she knew about an enhanced sewage treatment process that has resulted in producing a lot of solids. Initially, she stated it was a good win-win situation by allowing this stuff to be land applied…however, it's has

come to a head in her county. Her county had the rare opportunity to learn about the study. They listened to many scientists. She suggested the agency go back and look at the gaps. She also suggested the facility, who has operated under a permit, have a public health risk assessment. Many of the problems of multiple risks occurred in this case…They don't have ways of preventing biosolids from reaching those ocean waters. It makes it difficult for the community to respond when the people from the public health community don't have immediate answers. She asked, 'what do you do when you hear people say "we will have the answers later." She suggested to come up with good solutions.

Michael Warburton, Public Trust Alliance: Advocated that long-term public interest over short term economic interests are very much precautionary principles. Mentioned that particular resources are so important to civic society and that certain things are held in different light. Those that are so clearly inappropriate and unfair have been tolerated for so long. Where land is cheap is where a facility will like to locate. In terms of scientific uncertainty, perhaps one should look at other forms of science. He looks forward to seeing where the precautionary principle discussion will go.

Shradha Mehta, City & County of San Francisco Department of Environment: Mentioned that the department's focus on precautionary principle is finding alternatives. She maintained that the presentation by Mr. Douglas (dry cleaning) was a good example of seeking alternatives. When there is a diverse group of people affected-, how did Mr. Douglas groups come up with the criteria for the alternative?

Aubry Stone –CA Black Chambers of Commerce (please refer to the written public testimony submitted): Represents that Black Chamber, but also speaks on behalf the Asian and Latino Chambers of Commerce. Mentioned that it is important to maintain balance in the agenda with communities – a balance with economic development and the environment. Protection of the environment boils down to holding people accountable, and that the existing laws should be enforced, and that there is no reason to put anymore laws in the books when the rules need to be enforced. He supports protecting the environment and children's health, however, the proponents of the precautionary principle maintain that it's better safe than sorry. And that can sometimes be in conflict with the spirit of entrepreneurial ship. State policies holders should take a step back before putting another roadblock in front of small business owners.

Henry Perry, People Allied Chemical and Energy Workers International Union (PACE) (please refer to the written public testimony submitted): Stated he believed the Committee should carefully analyze their decisions because there are 20,000 people who make paper. He stated that his union's purpose was to stand up for rights of the workers. He believed that everyone of the union's workers have the right to a fair and clean but this precautionary principle could lead to a loss of jobs. He urged the Committee to take precaution in implementing the precautionary principle.

David De Luz, National Association for the Advancement of Colored People (NAACP) (please refer to the written public testimony submitted): addressed the advisory committee and expressed his support for the environmental justice movement. He

mentioned that the NAACP has made the environmental justice movement a civil rights priority. Mr. De Luz's testimony focused on his reservation regarding the implementation of the Precautionary Principle as an "assessment paradigm." He offered his understanding and interpretation of the precautionary principle and explained that "precaution without sound evidence and demonstrated risk is not a sound foundation…" Mr. De Luz concluded his testimony by saying that there is a need to encourage government regulators to base environmental precaution on "real data."

Curtis Coleman, Congress on Racial Equality (CORE)(please refer to the written public testimony submitted): We are concerned about the departure of the existing policies and procedures that has worked. The application of that principle results about actions being taking on the extreme end. We support a precautionary approach. With regard to cumulative impact analysis my experience is with the air. An effort needs to be made that these people are in the loop…Chlorination of water in Brazil. I haven't heard the definition of the precautionary principle.

Martha Arguello, Physicians for Social Responsibility: Expressed concern regarding the various interpretations of the precautionary principle and that the views are quite extreme. She thinks that providing incentives for finding alternatives to better protect the environment makes sense. (i.e. wet cleaning).

Steven Hamilton, Chairman of Affairs Congress of Racial Equality of California (please refer to written testimony): stated that he believes that environmental justice is long overlooked set of issues in low income minority communities. He mentioned the definition of Environmental Justice and stated that environmental justice is achieved when everyone is protected from environmental hazards and involved in the decision-making process. Mr. Hamilton continued by saying that racial, ethnic and a socioeconomic group should not bear a disproportionate share of negative environmental impacts; However, he expressed his concern with the implementation of the precautionary principle. Although a cleaner environment and the health and safety of people is important to him and CORE, his concern is the loss of jobs that may result from the implementation of the precautionary principle. He concluded his testimony by saying that the Committee should be "careful" and "cautious" when considering the precautionary principle and recommended that the Committee consider other measures.

Tim Shestek, American Chemistry Council: Stated there was nothing biased about the precautionary principle. The US has taken a precautionary approach. He shared concern about moving away from current science based approach. He stated there had been some discussion about what's been happening in San Francisco.

Ken McGhee, CalFED Environmental Justice Coordinator: Expressed surprise at the public testimony speakers on the precautionary principle, and mentioned that as a person who works in the government sector, the precautionary principle should be part of our work. Mentioned that in the previous public testimony, many folks did not mentioned human health when talking about economic development, which surprised him. In his experience, environmental health and public health a primary priorities in communities (particularly those that are also in need of economic development).

Sharyle Patton, Commonweal: Expressed concern about the misconception about the precautionary principle. She maintained concern about how the precautionary principle is being argued as stopping economic development. She highlighted the rising incidence of testicular cancer as an example of why we need to take action. She provided testimony regarding her experience in a body burden study, where the researchers examined 210 chemicals in the body, and she was found to have 105 of them. She didn't know how it got into her body, having lived in what she suspected was a clean environment. She maintains that regulations need to be strengthened to ensure a clean environment.

VI. NEXT STEPS AND CONCLUSION

Advisory Committee Co-Chair Diane Takvorian thanked the public for attending the meeting today and for providing testimony to the Committee. She mentioned that the Committee heard a tremendous amount of valuable information, and that the Committee will need to think about how it wants to utilize it's remaining time in this meeting. She maintained the purpose of the meeting was to gain more information on the two topic areas – precautionary principle and the cumulative impacts. She felt that that was accomplished.

Committee member Barbara Lee proposed that the Committee may want to consider adding one additional day to the March 19th Committee meeting. Particularly given the amount of work and discussion needed to ensure that the Committee's EJ Strategy Recommendations document gets completed.

The Committee discussed possible dates, and some committee members expressed concern about adding an additional day because of prior obligations and time commitments.

It was agreed by the Committee that while the full Committee may not be able to attend an additional day to meet in March, the Committee would still have a quorum to conduct a 2-day meeting in March.

Next Committee Meeting scheduled for March 18-19, 2003.